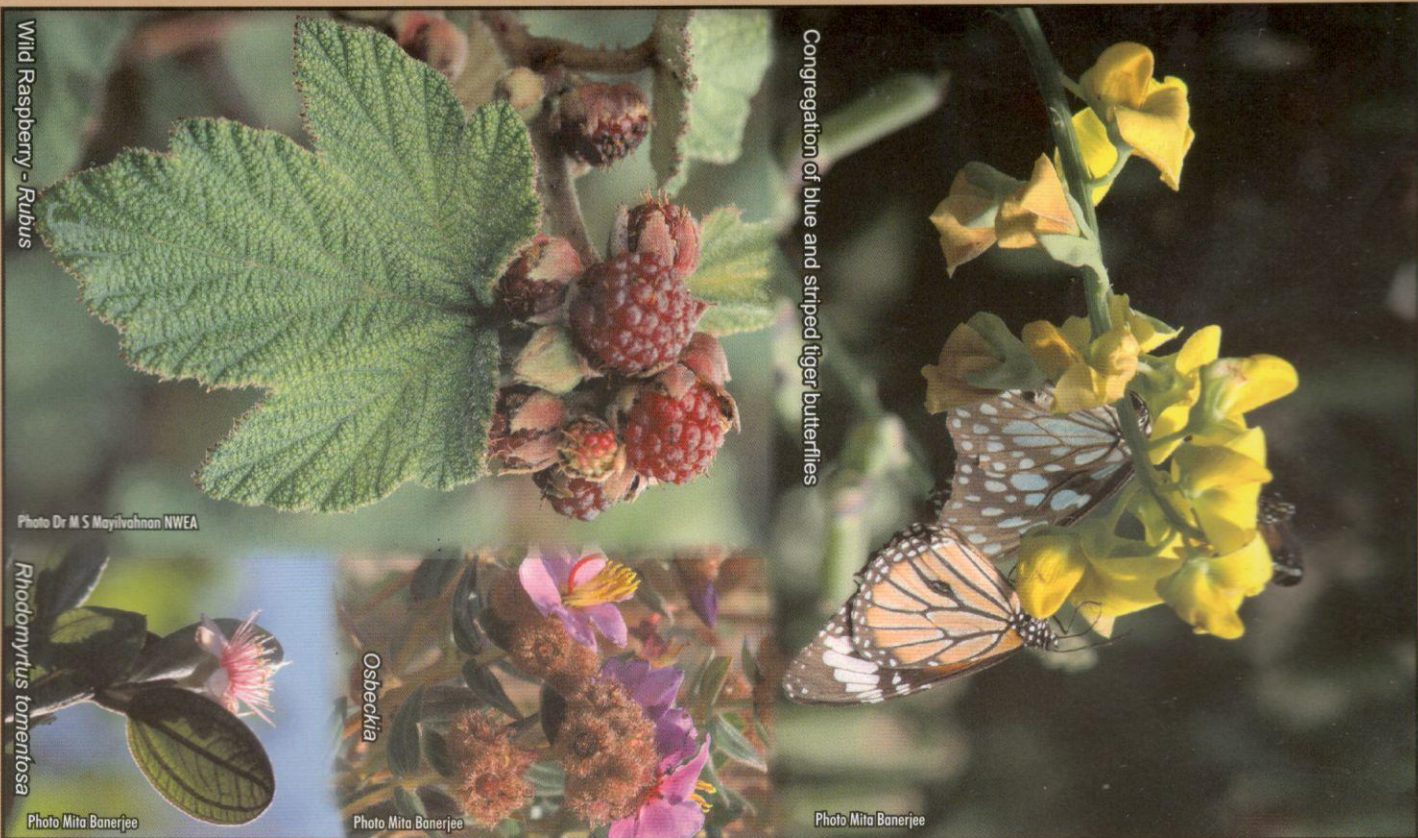


BIODIVERSITY OF TAMILNADU

There are 17,672 species of flowering plants or Angiosperms in India. Tamil Nadu ranks 1st among all Indian States with as many as 5640 species i.e. 32%. Of these 533 are endemic, 230 red-listed, 1559 medicinal and 260 wild relatives of cultivated plants. As far as Gymnosperms are concerned, there are 64 species in India of which Tamil Nadu has 4 species (6%) of indigenous Gymnosperms and as many as 60 introduced species. Likewise, there are 1022 species of Pteridophytes in the country of which about 184 species i.e. 18% are found in Tamil Nadu.



Congregation of blue and striped tiger butterflies

Photo Mita Banerjee

Osbeckia

Photo Mita Banerjee

Wild Raspberry - Rubus

Photo Dr. M S Mayilvahanan NWEA

Rhodomyrtus tomentosa

Photo Mita Banerjee



Photo Dr. M S Mayilvahanan NWEA

Diplocentrum recurvum - an Orchid



Photo Mita Banerjee

Calanthe - a ground orchid



Photo Mita Banerjee

A dragonfly at Ooty

The faunal diversity of Tamil Nadu includes 165 species of fresh water fish of which 126 (76%) are red listed, 76 species of Amphibians of which 56 (74%) are red listed, 177 species of Reptiles of which 77 (44%) are red listed, 454 species of Birds of which 32 are red listed and 187 species of Mammals of which 40 (21%) are red listed. The endemic fauna includes 36 species of amphibians, 63 species of reptiles, 17 species of birds and 24 species of mammals.



Photo Dr. M S Mayilvahanan NWEA

Coppersmith



Photo Dr. M S Mayilvahanan NWEA

Tropical fruit piercer



Photo Dr. M S Mayilvahanan NWEA

Red Pierrot

THE NILGIRIS

It is a very unique hill district in Tamilnadu. The name 'Nilgiris' or 'Blue Mountains' is said to be due to the blue appearance seen when the Kurunji blossoms. It is part of the Western Ghats, a biodiversity hotspot of the world. Its highest land mass, the Nilgiri plateau, lies where the Western Ghats meets the Eastern Ghats. It shows great variation in altitude, climate, rainfall, terrain and vegetation. For example, altitude varies from less than 300m to over 2500m above msl and rainfall varies from 600mm to over 5000mm. The upper reaches are exposed to harsh climatic conditions. Extremes of temperature & rainfall, wide diurnal variations, winter frost, high solar radiation and edaphic range has resulted in the great biodiversity of Nilgiris. The floral diversity has attracted botanists since 1845. It is home to unique "Shola" vegetation and several specialized animals.

VEGETATION

Four types of vegetation found in the Nilgiris are:

- Shola grassland of Nilgiri plateau
- Open sandal bearing scrub of Segur plateau
- Moist deciduous and dry deciduous teak forests of Nilgiri-Wyanad
- Forests of South-eastern outer slopes



12 year Kurunji

Photo Dr M S Mayilvahanan NWEA



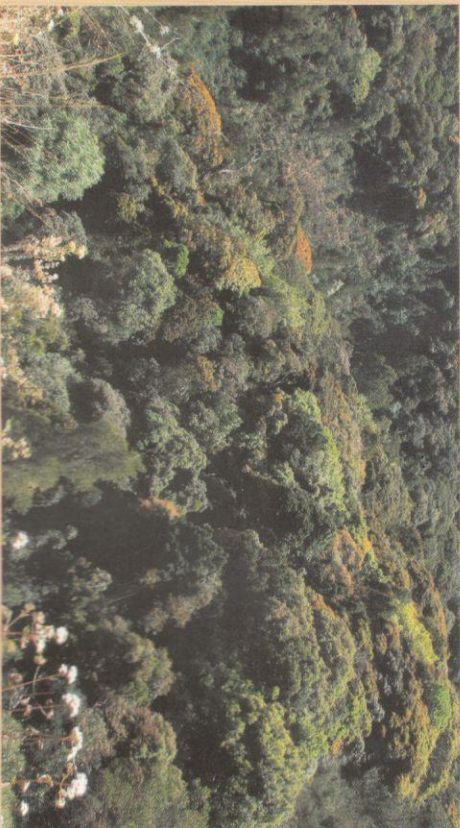
Impatiens viridiflora

Photo Dr M S Mayilvahanan NWEA



Impatiens sp.

Photo Dr M S Mayilvahanan NWEA

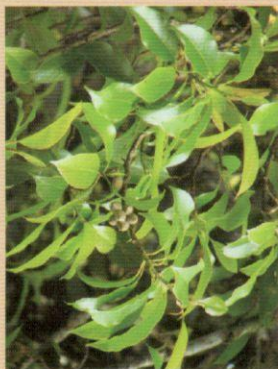


Shola Forest

Photo Mita Banerjee

Biodiversity

Sholas are most characteristic of the Nilgiris. These are compact woodlands isolated between vast expanses of grasslands in the Nilgiris, Palani and Anamalai hills of Tamil Nadu and adjoining areas of Kerala at an altitude of between 1700 and 2000 meters. It has been aptly described by a scientist as a fossil ecosystem.



Michelia nilagrica

Photo Mita Banerjee



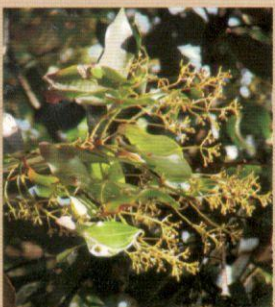
Syzygium arnottianum

Photo Nagarejan



Rosa leschenaultii

Photo Mita Banerjee



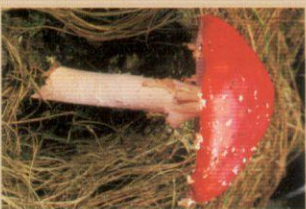
Wild variety of cinnamon

Photo Mita Banerjee



Pholiota sp

Photo Dr. M S Myilvahanan NWEA



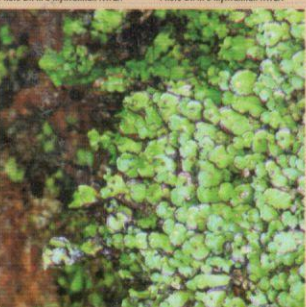
Amanita muscaria

Photo Dr. M S Myilvahanan NWEA



Fungi

Photo Dr. M S Myilvahanan NWEA



Bryophytes on rock

Photo Mita Banerjee

Biodiversity

Many plants in these forests have medicinal properties. Shola grasslands themselves harbour several rare and endemic species. Some rare & endangered shola species are *Coelogyne mossiae*, *Cotoneaster buxifolia*, *Crotalaria prietleyoides*, *Eleocharpus blascoi*, *Youngia nilgiriensis*, etc. Sholas arrest surface runoffs from the hills which is released gradually by the foliage, grasses, humus and rocky layers. Thus, the shola-grassland system acts as a perennial source of water giving rise to many rivers in Kerala and Tamil Nadu and the Nilgiris provides 35% of the state's hydel power.



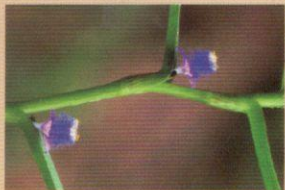
Costus speciosus - a medicinal plant

Photo Dr. M S Myilvahan NWEA



Gautheria fragrantissima or wintergreen

Photo Mita Banerjee



Cyanotis sp

Photo Dr. M S Myilvahan NWEA



Coelogyne mossiae
An Epiphytic Orchid

Photo Dr. M S Myilvahan NWEA



Crotalaria sp

Photo Dr. M S Myilvahan NWEA



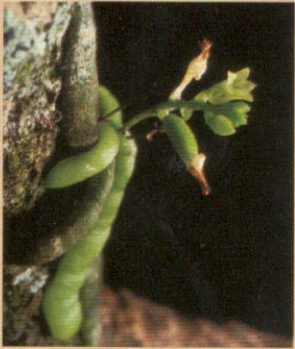
Arisaema sp. or cobra plant

Photo Dr. M S Myilvahan NWEA



Drosera-an insect eating plant

Photo Mita Banerjee



Taeniophyllum-Leafless orchid

Photo Dr. M S Myilvahan NWEA



Bee hawk moth

Photo Dr. M S Myilvahan NWEA



Atlas moth

Photo Dr. M S Myilvahan NWEA



Golden Emperor

Photo Mita Banerjee



Luna Moth - *Actias selene*

Photo Dr. M S Myilvahan NWEA



Scorpion at Geddai in the Nilgiris

Photo Mita Banerjee

FAUNA

Sholas harbour specialised animals such as tree frogs, burrowing snakes and geckos. They have developed or have not faced extinction because sholas are like islands cut off from the mainland. Several species of spiders and insects such as bees, wasps, ants and butterflies also occur in the sholas. Furthermore, resident and migrant birds and cold fresh water fishes also add to the faunal diversity of the sholas.



A bee of Nilgiris

Photo Mita Banerjee



Wood Spider

Photo Dr. M S Myilvahan NWEA

MAMMALS

The Nilgiris include some highly endangered species such as the Nilgiri tahr, animals of the shola grasslands and rocky cliffs, whose numbers were depleted in the Nilgiris due to habitat destruction and poaching. They are found in groups of 10 to 15, which may in turn form larger groups. Another possibly endangered animal is the Nilgiri marten, a rarely seen small carnivore belonging to the weasel family. Other predators in this area include tigers, leopards, wild dogs, jungle cat, leopard cat and small Indian civet. Jackals are quite abundant. Otters are found in some of the streams. Bison and sambar are the most common herbivores. Barking deer,



Nilgiri tahr

Photo D. Banerjee



Bison at Avalanchi

Photo Nagarajan



Nilgiri langur

Photo Sunderaraj



Sambar deer

Photo Nagarajan



A tiger within the Nilgiri Biosphere Reserve

Photo Mita Banerjee

mouse deer and black naped hares are also found. Elephants too are seen mostly migrating to the upper plateau from Silent Valley and Attapadi. Other species include Nilgiri langur, slender loris, giant squirrels, bears, striped neck mongoose, flying squirrels, etc.



Malabar Giant squirrel

Photo Mita Banerjee



Photo Mita Banerjee

Elephant - largest herbivore seen in Nilgiris



Flying Squirrel

Photo Mita Banerjee

AVIFAUNA



Magpie Robin (male)

Photo Mita Banerjee



Chestnut headed Bee eater

Photo Mita Banerjee



Yellow-browed Bulbul

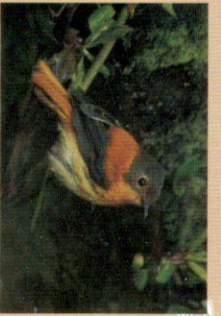
Photo Ramneek Singh



Changeable (or crested) hawk eagle

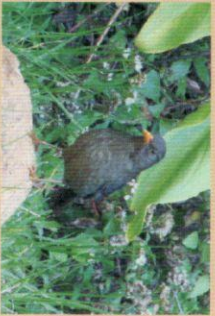
Photo Mita Banerjee

There are at least a dozen species of birds which are endemic to the shola grasslands of the high altitude of the Western Ghats. The close relatives of the thrushes in these regions are seen in the eastern Himalayas. Nilgiri laughing thrush is an endangered species found in the Nilgiris. The critically endangered Oriental White backed vulture and Long-billed vulture are found in Mudumalai National Park. Besides, vulnerable species like Nilgiri Wood Pigeon, White-bellied Shortwing, Kashmir flycatcher, Lesser Adjutant, Yellow-throated bulbul, Broad tailed Grass-warbler and Pied tit and near threatened species such as Nilgiri pipit, Black and orange flycatcher and Nilgiri flycatcher are found in the Nilgiris. In fact, of 34 Important Bird Areas of Tamilnadu 9 are found in the Nilgiris of which 6 are in Nilgiris South Division, Ooty.



Black and orange flycatcher

Photo Ramneek Singh



Blackbird

Photo Mita Banerjee



Nilgiri flycatcher (male)

Photo Mita Banerjee



Nighthawk

Photo Dr M S Mayilvahanan NWEA



Great tit

Photo Mita Banerjee



Photo Dr M S Mayilvahanan NWEA



Velvet fronted nuthatch at Avalanchi



Red whiskered bulbul

Photo Mita Banerjee

REPTILES

The mountain wine snake, *Ahetullah perroteti* is confined to the high altitude grasslands of Nilgiris. The Western Ghats are also home to the Uropeltidae (shelltails), a group of burrowing snakes found at altitudes of 1500 metres and above. There are 44 species of uropeltids found exclusively in the Western ghats and Sri Lanka.



Sispara Dwarf Gecko

The Nilgiri dwarf gecko (*Cnemaspis indicus*) which is greenish-brown with a row of orange-yellowish spots down the back and the sides is the commonest forest gecko of Nilgiris, but is also found in Coorg, Karnataka. The Sispara dwarf gecko (*Cnemaspis sisparensis*) is rare and restricted to the Sispara ghat, Nilgiris. *Cnemaspis jerdoni* is another rare gecko found in the Nilgiris, Anaimalais, Palanis and Sivagiri Hills of Western Ghats. *Cnemaspis littoralis* (arboreal dwarf gecko) diurnal gecko occurs in the dry forests of Nilambur, Kerala and Nellikota, Nilgiris. Nilgiri Salea (*Salea horsfieldi*) is an agamid lizard ubiquitous throughout Nilgiris and Palnis. It shows wide colour variation, varying from brown to bright green with differing patterns on the body. *Calotes namericola* is another lizard found in Nilgiri hills.

AMPHIBIANS

The Western Ghats, is considered to be the richest in amphibians in Asia. There are about 120 species of amphibians, of which 89 are endemic.



Photo Ramneek Singh

BUTTERFLIES

India has a rich butterfly fauna comprising of 1501 species out of 16, 823 species recorded from all over the world (Gaonkar, 1996). Of the various butterfly habitats found in India, the Western Ghats is one of the most diversified areas containing a wide variety of species due to the typical eco-climatic and geographic features. In the Western Ghats, maximum diversity is observed in the Nilgiri Biosphere Reserve (NBR) region. Of 330 species recorded from the Western Ghats, 316 species have been reported from the NBR.

From the NBR region, 48 endemic butterflies have been recorded (Larsen 1987, 1988).



Red Helen butterfly

Photo Mita Banerjee



Blue Pansy

Photo Dr M S Mayilvahanan NWEA



Yam Fly

Photo Dr M S Mayilvahanan NWEA



Blue Admiral

Photo Mita Banerjee



Red Admiral A butterfly of wooded regions



Indian fritillary a Palaearctic butterfly of hilly regions

Photo Mita Banerjee

ENDEMICITY AND THE HIMALAYAN CONNECTION

As the high altitude sholas are like islands, endemicity is high. Over 80 species of plants are found only on the Nilgiris plateau. Bio-geographic isolation due to the complex terrain and harsh climatic factors has helped retain the biodiversity to a great extent. The upper Nilgiris region has 8 species of plants found nowhere else on earth. Many of the 200 species of orchids recorded in South India are found in the Shola-Grasslands. There are some butterfly species, which are endemic to the mountains 1500m above msl on the Western Ghats such as the Nilgiri grass yellow (*Eurema nilgiriensis*), Nilgiri clouded yellow (*Colias nilgiriensis*), Red disk bushbrown (*Mycalasis oculus*), Red eye bushbrown (*Mycalasis adolphe*), Indian cabbage white and Nilgiri fourring (*Ypthima chenui*).



Southern Bird Wing Indias Largest Butterfly

Photo Mita Banerjee



Berberis in flower

Photo Mita Banerjee



Species of the higher elevation grass lands

Photo Mita Banerjee



Common Rosefinch

Photo Mita Banerjee



Rhododendron

Photo Mita Banerjee



Nilgiri laughing thrush

Photo Dr M S Mayilvahanan NWEA

A number of species are of Himalayan origin such as *Rhododendron*, *Rubus*, *Gaultheria fragrantissima*, *Hypericum*, *Lonicera*, *Berberis*, etc. among plants, which is considered a bit of a mystery. Fauna with Himalayan connection are Nilgiri tahr, Nilgiri marten, Nilgiri thrushes, etc. Closest relative of the Nilgiri tahr is the Himalayan tahr and that of Nilgiri marten the Himalayan yellow throated marten which enjoys a wider distribution. The woodcock flies more than 2,000 km from the Himalayas to Nilgiris. The grassland landscape dominates the wooded areas and this too is a feature common to high altitude areas like the Himalayas.

CONSERVATION

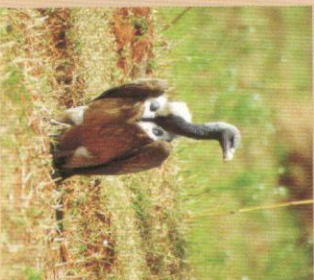
The Nilgiri Biosphere Reserve was the first biosphere reserve to have been established in India in the year 1986. It includes 2 of the 10 biogeographical provinces of India. Of the 3,300 species of flowering plants in NBR, 132 are endemic to the Nilgiri Biosphere Reserve. Likewise, 8 out of 175 species of orchids found here are endemic to NBR. 41 species of butterflies recorded from NBR have protected status under the Wildlife (Protection) Act, 1972 (Anon., 1990). 8 of these species are listed in Schedule I, 26 in Schedule II and 7 species in Schedule IV of the Act.



White bellied shortwing



Osprey at Kabini



Indian White backed Vulture

Photo Dr M S Mayilvahanan NWEA

Photo Mita Banerjee

There are two protected areas within Tamilnadu jurisdiction of the NBR i.e. Mukurthi National Park and Mudumalai Tiger Reserve. Declaration of the Reserve with its protected areas is a step towards acknowledging its significance in terms of biodiversity and an attempt towards conservation. It is now for the people to take it forward by minimizing disturbance and damage of any kind even outside protected areas.



Photo Mita Banerjee

Nilgiri flycatcher (female) in the backdrop of *Mappia foetida* a medicinal plant